AMENDMENTS TO THE CLAIMS

1-25. (Canceled)

26. (Original) A method of fabricating a memory element comprising the acts of:

forming a first chalcogenide glass layer, said first chalcogenide glass layer having a first stoichiometry;

introducing a metal into said first chalcogenide glass layer to form a first metal-containing chalcogenide glass layer;

forming a second chalcogenide glass layer, said second chalcogenide glass layer having a second stoichiometry different from said first stoichiometry; and

introducing a metal into said second chalcogenide glass layer to form a second metal-containing chalcogenide glass layer.

27. (Original) A method of claim 26 wherein said first chalcogenide glass layer comprises a first germanium-selenide glass layer and said second chalcogenide glass layer comprises a second germanium-selenide glass layer.

28. (Original) A method of claim 27 wherein said first and said second germanium-selenide glass layers have a stoichiometric composition of about Ge_xSe_{100-x}.

29. (Original) A method of claim 28 wherein the value of x for said first germanium-selenide glass layer is greater than the value of x for said second germanium-selenide glass layer.

30. (Original) A method of claim 29 wherein the value of x for said first germanium-selenide glass layer is about 38 to about 43 and the value of x for said second germanium-selenide glass layer is about 18 to about 33.

31. (Original) A method of claim 30 wherein the value of x for said first germanium-selenide glass layer is about 40 and the value of x for said second germanium-selenide glass layer is about 25.

32. (Original) A method of claim 28 wherein the value of x for said first germanium-selenide glass layer is less than the value of x for said second germanium-selenide glass layer.

33. (Original) A method of claim 28 wherein silver is introduced into said first and said second germanium-selenide glass layers.

34. (Original) A method of claim 33 wherein the step of introducing silver into any of the said first or said second germanium-selenide glass layers having a value of x between about 18 and about 33 comprises the steps of:

depositing a silver-containing layer over said any of the said first or said second germanium-selenide glass layers having a value of x between about 18 and about 33;

irradiating said any of the said first or said second germanium-selenide glass layers having a value of x between 18 and about 33 with electromagnetic radiation of wavelength of about 200 nm to about 600 nm for approximately 5 to about 30 minutes at from about 1 mW/cm^2 to about 10 mW/cm^2.

35. (Original) A method of claim 34 further comprising removing residual silver-containing layer from over irradiated said any of the said first or said second germanium-selenide glass layers having a value of x between 18 and about 33.

36. (Original) A method of claim 34 further comprising thermally heating said silver containing layer and said first or said second germanium-selenide glass layer at a temperature of about 50° C to about 350° C for about 5 to about 15 minutes.

37. (Original) A method of claim 36 comprising the step of thermally heating said silver containing layer and said first or said second germanium-selenide glass layer at a temperature of about 110° C.

38. (Original) A method of claim 34 wherein said silver-containing layer comprises silver-selenide.

39. (Original) A method of claim 33 wherein the step of introducing silver into any of said first of said second germanium-selenide glass layers having a value of x between about 38 and about 43 comprises the steps of:

depositing a silver-containing layer over said any of said first or said second germanium-selenide glass layers having a value of x between about 38 and about 43;

allowing silver from said silver-containing layer to migrate into said any of said first or said second germanium-selenide glass layers having a value of x of about 38 to about 43.

40. (Original) A method of claim 39 further comprising the step of removing residual silver-containing layer from over said first or said second germanium-selenide glass layer.

41. (Original) A method of claim 39 wherein said silver-containing layer comprises silver-selenide.

42. (Original) A method of claim 26 further comprising the act of forming a first electrode coupled to said first metal-containing chalcogenide glass layer.

43. (Original) The method of claim 42 wherein said first electrode comprises tungsten.

44. (Original) The method of claim 26 further comprising the act of forming a second electrode coupled to said second metal-containing chalcogenide glass layer.

45. (Original) The method of claim 44 wherein said second electrode comprises silver.

46. (Original) A method of fabricating a memory element comprising the steps of:

forming a first chalcogenide glass layer, said first chalcogenide glass layer having a first glass matrix structure;

introducing metal into said first chalcogenide glass layer to form a first metal-containing chalcogenide glass layer;

forming a second chalcogenide glass layer, said second chalcogenide glass layer having a second glass matrix structure diverse from said first glass matrix structure;

introducing metal into said second chalcogenide glass layer to form a second metal-containing chalcogenide glass layer;

forming at least one additional chalcogenide glass layer, said at least one additional chalcogenide glass layer having a glass matrix structure different from the glass matrix structure of any metal-containing chalcogenide glass layer adjacent to said at least one additional metal-containing chalcogenide glass layer; and

introducing metal into said at least one additional chalcogenide glass layer to form at least one additional metal-containing chalcogenide glass layer.

47. (Original) A method of claim 46 wherein said first chalcogenide glass layer comprises a first germanium-selenide glass layer, said second chalcogenide glass layer comprises a second germanium-selenide glass layer, and said at least one additional chalcogenide glass layer comprises at least one additional germanium-selenide glass layer.

48. (Original) A method of claim 47 wherein said first, said second, and said at least one additional germanium-selenide glass layers have a stoichiometric composition of about Ge_xSe_{100-x}.

49. (Original) A method according to claim 48 wherein the value of x for said at least one additional germanium-selenide glass layer equals the value of x of any other germanium-selenide glass layer, wherein said any other germanium-selenide glass layer is not positioned consecutively to said at least one additional germanium-selenide glass layer.

50. (Original) A method of claim 49 wherein said at least one additional germanium-selenide glass layer comprises a third germanium-selenide glass layer.

51. (Original) A method of claim 50 wherein the value of x for said first and said third germanium-selenide glass layers is equal.

52. (Original) A method of claim 51 wherein the value of x for said first and said third germanium-selenide glass layers is greater than the value of x for said second germanium-selenide glass layer.

53. (Original) A method of claim 52 wherein the value of x for said first and said third germanium-selenide glass layers is from about 38 to about 43 and the value of x for said second germanium-selenide glass layer is from about 18 to about 33.

54. (Original) A method of claim 53 wherein the value of x for said first and said third germanium-selenide glass layers is about 40 and the value of x for said second germanium-selenide glass layer is about 25.

55. (Original) A method of claim 48 wherein the value of x for said at least one additional germanium-selenide glass layer is diverse from the value of x for other silver-containing germanium-selenide glass layers.

56. (Original) A method of claim 55 wherein the values of x for each of said first, said second, and said at least one additional germanium-selenide glass layer ascend from said first electrode to said second electrode.

57. (Original) A method of claim 55 wherein the values of x for each of said first, said second, and said at least one additional germanium-selenide glass layer descend from said first electrode to said second electrode.

58. (Original) A method of claim 48 wherein said metal comprises silver.

59. (Original) A method of claim 58 wherein the step of introducing silver into any of the said first, said second, or said at least one additional germanium-selenide glass layers having a value of x between about 18 and about 33 comprises the steps of:

depositing a silver-containing layer over said any of the said first, said second, or said at least one additional germanium-selenide glass layers having a value of x between about 18 and about 33;

irradiating said any of the said first, said second, or said at least one additional germanium-selenide glass layers having a value of x between about 18 and about 33 with electromagnetic radiation of wavelength of about 200 nm to about 600 nm for approximately 5 to about 30 minutes at from about 1 mW/cm^2 to about 10 mW/cm^2.

60. (Original) A method of claim 59 further comprising removing residual silver-containing layer from over irradiated said any of the said first, said second, or said at least one additional germanium-selenide glass layers having a value of x between about 18 and about 33.

61. (Original) A method of claim 59 further comprising thermally heating said silver containing layer and said any of the said first, said second, or said at least one additional germanium-selenide glass layers having a value of x between about 18 and about 33 at a temperature of about 50° C to about 350° C for about 5 to about 15 minutes.

62. (Original) A method of claim 61 comprising the step of thermally heating said silver containing layer and said any of said first, said second, or said at least one additional germanium-selenide glass layer having a value of x between about 18 and about 33 at a temperature of about 110° C.

63. (Original) A method of claim 59 wherein said silver-containing layer comprises silver-selenide.

64. (Original) A method of claim 58 wherein the step of introducing silver into any of the said first, said second, or said at least one additional germanium-selenide glass layers having a value of x between about 38 and about 43 comprises the steps of:

depositing a silver-containing layer over said any of the said first, said second, or said at least one additional germanium-selenide glass layer having a value of x between about 38 and about 43;

allowing silver from said silver-containing layer to migrate into said any of said first, said second, or said at least one additional germanium-selenide glass layer having a value of x between about 38 and about 43.

65. (Original) A method of claim 64 further comprising the step of removing residual silver-containing layer from over said any of said first, said second, or said at least one additional germanium-selenide glass layer having a value of x between about 38 and about 43.

66. (Original) A method of claim 64 wherein said silver-containing layer comprises silver-selenide.

67. (Original) A method of claim 46 further comprising the step of forming a first electrode coupled to said first metal-containing chalcogenide glass layer.

68. (Original) A method of claim 67 wherein said first electrode comprises tungsten.

69. (Original) A method of claim 446 further comprising the step of forming a second electrode coupled to the last formed said at least one additional metal-containing chalcogenide glass layer

70. (Original) A method of claim 69 wherein said second electrode comprises silver.